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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/759,804

01/12/2001

Surajit Chaudhuri

15-910 - 4254

2731

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12/07/2006

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EXAMINER

FILIPCZYK, MARCIN R

ART UNIT

PAPER NUMBER

2163

DATE MAILED: 12/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/759,804

Applicant(s)

CHAUDHURI ET AL.

Examiner

Marc R. Filipczyk

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 October 2006.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 49-54 is/are pending in the application.  
4a) Of the above claim(s) 1-48 is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 49-54 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 12 January 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

***Response to Arguments***

This action is responsive to Applicant's amendment filed on October 2, 2006.

Claims 49-54 are pending.

To expedite the process of examination Examiner requests that all future correspondences in regard to overcoming prior art rejections or other issues (e.g. amendments, 35 U.S.C. 112, objections and the like) set forth by the Examiner that Applicants provide and link to the most specific page and line numbers of the disclosure where the best support is found (see 35 U.S.C. 132).

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 49-51 and 53 are rejected under 35 U.S.C. 102(e) as best as the Examiner is able to ascertain as being anticipated by Osborn et al (U.S. Patent No 6,026,391).

Regarding claims 49-51 and 53, Osborn discloses a method and medium for estimating result of a current database query, comprising: (title)

collecting information related to past queries against a database (col. 6, line 44-50);

*(Note: results of past queries are obtained from a database after execution of the database)*

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examining the collected information to determine an access frequency for each tuple accessed during the one or more past queries [particular table and columns accessed] (col. 6, lines 51-54, 59 and 65-67);

*(Note: when a query is submitted only once the tuple in the database may only be accessed once)*

determining sample weight based on the access frequency of the tuples (col. 7, lines 17-23);

(Note: statistics cache 48 includes number of times particular table and columns were accessed)

selecting a sample of tuples from the database based on weights of the tuples; (fig. 2, items 45, 46 and 48); and

*(Note: the time, date and exact records, i.e., particular table and column access is stored in cache 48, lines 6, lines 51-68)*

executing a query against the sample to determine an approximate answer to the query made against the database [compare result set with past queries] (fig. 2 and 4, item 46, 54 and 80 and col. 7, lines 7-10). In addition, Osborn teaches using a probability [estimates] (col. 6, lines 23-30).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 52 and 54 are rejected under 35 U.S.C. 103(a) as best as the Examiner is able to ascertain as being unpatentable over Osborn et al (U.S. Patent No 6,026,391) in view of Acharya et al (U.S. Patent No. 6,519,604).**

Regarding claims 52 and 54, Osborn discloses all of the subject matter as discussed above with respect to claims 49 and 53 including sampling but does not expressly teach computing an inverse of probabilities. However, Acharya discloses an approximating querying method for databases with multiple grouping attributes (see title, Acharya) and teaches calculating aggregates (fig. 6, Acharya) for each sampled tuple (*Grouping Columns*) and multiplies each value by an inverse of the probability with which corresponding tuples were sampled (col. 12, lines 13-23, Acharya).

Hence, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to calculate aggregates in Osborn system as done in Acharya method by expanding upon Osborn's potential execution plan that is based on workload storage of characteristics for the respective tables, clusters and indexes to be used (col. 6, lines 27-29, Osborn) to further calculate by using inverse of probabilities and keep track of all the aggregates (attributes and characteristics) of the desired tuples (records) to more precisely process sampled queries and maximize efficiency of the performed search.

***Response to Arguments***

Applicant's arguments filed on October 10, 2006 have been fully considered but they are not persuasive. The arguments and responses are listed below.

Applicant argues on pages 5-7 that the office action submitted by the office was not fully responsive to Applicant's amendments and arguments.

Examiner disagrees. Applicant's amendments and arguments on record were all addressed in the previous office actions. Applicant did not make it clear to the Examiner which limitations they are referring to. As such, all the claimed limitations remain rejected.

Applicant argues on pages 7 and 8 that the claimed subject matter of "determining a sample weight of a tuple and simply recording information for each user query are two separate and distinct operations".

Examiner brings forth a previous response of record submitted on 6/30/06:

Applicant argues on pages 9-14 of the 6/15/06 response that Osborn does not teach determining a "weight".

'In response to Applicant's argument, Examiner disagrees. Osborn teaches recorded query history 50 is loaded into statistics cache for comparisons, see col. 6 line 51 to col. 7, line 16. It is clear to one of skill in the art that the preferred data from the history is used, depending on user application whether the user is concerned about the cost, length or efficiency of executing a query, equivalent to ranking or weighting the preferred searchable data. In addition, Examiner notes that Applicants claim only one past query, and executing one past query would result in all the tuples having an equivalent weight of one. Applicants arguments are believed moot in view of the above statements.'

As pointed out previously, using history data for comparison is similar to weighting records based on some factor, such as stored data from history and thus the concept is the same.

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Further, Applicant requested subjective evidence to support the argument regarding all the tuples having the same weights. As previously stated, if only one past query or even more past queries are used in determining an answer and the past queries have zero hits than at least in this example all the weights for all the tuples (records) in the database would be the same, hence weights are not required as recited by the claims.

With respect to all the pending claims 49-54, Examiner respectfully traverses Applicant's assertion based on the discussion and rejection cited above.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marc R. Filipczyk whose telephone number is (571) 272-4019.

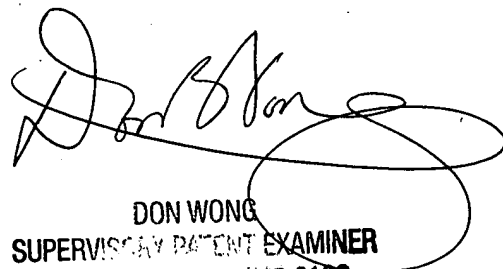
The examiner can normally be reached on Mon-Fri, 8:30am-5pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on 571-272-1834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MF  
November 28, 2006



DON WONG  
SUPERVISORY PATENT EXAMINER  
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